Energy Efficiency: A Priority

ET ACTION !

October 9th 2013

NBC profile (April 30th, 2013)

1st financial institution in Quebec

19 920 employees

451 branches in Canada

2,4 million individual clients

Energenia's profile

energenia

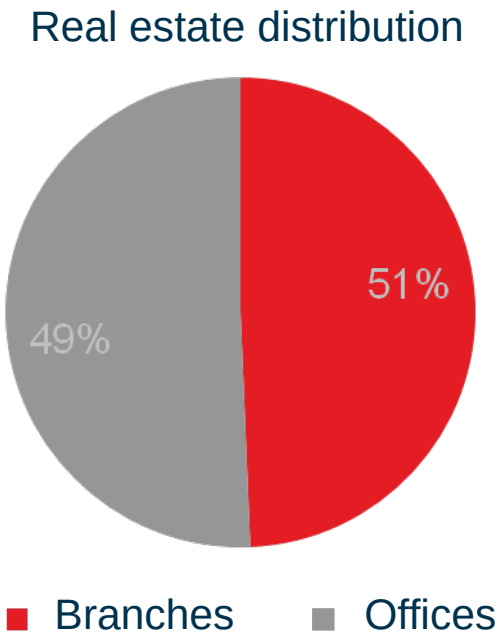
Consulting firm specializing exclusively in energy efficency

Founded by Robert Patenaude in 2003

National Bank's main partner for the development, implementation and supervision of the energy efficiciency program since 2006

Real estate in Canada[1]

- 5,5M ft² in Canada
  - 919 leases
  - 94 properties – 586k ft²
  - 98,3% occupancy



[1] Excluding the acquisition of Wellington West

Branches' energy balance

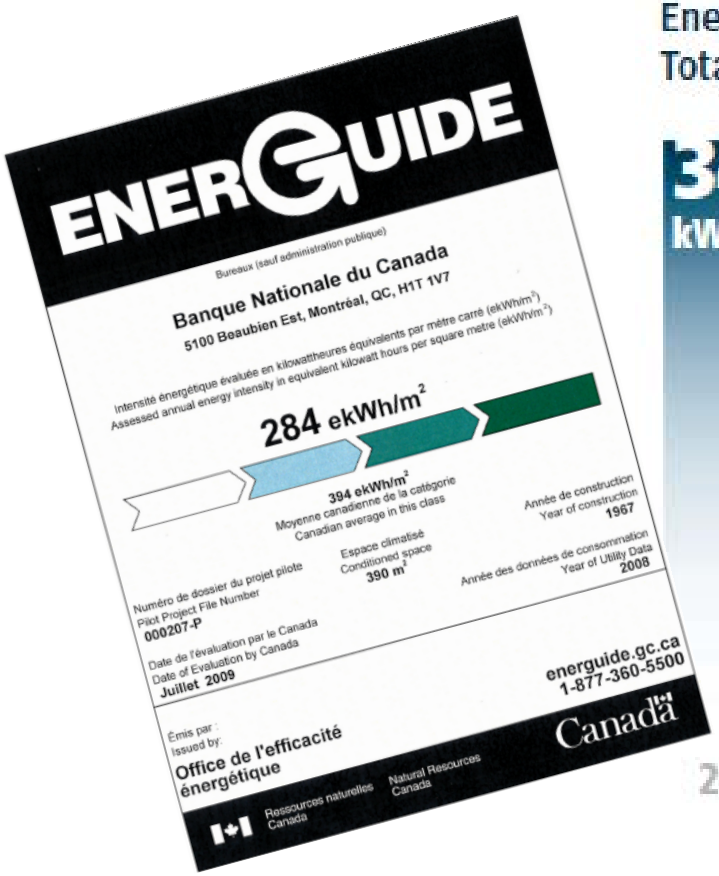
58 200 MWh eq. / year – $5.2M

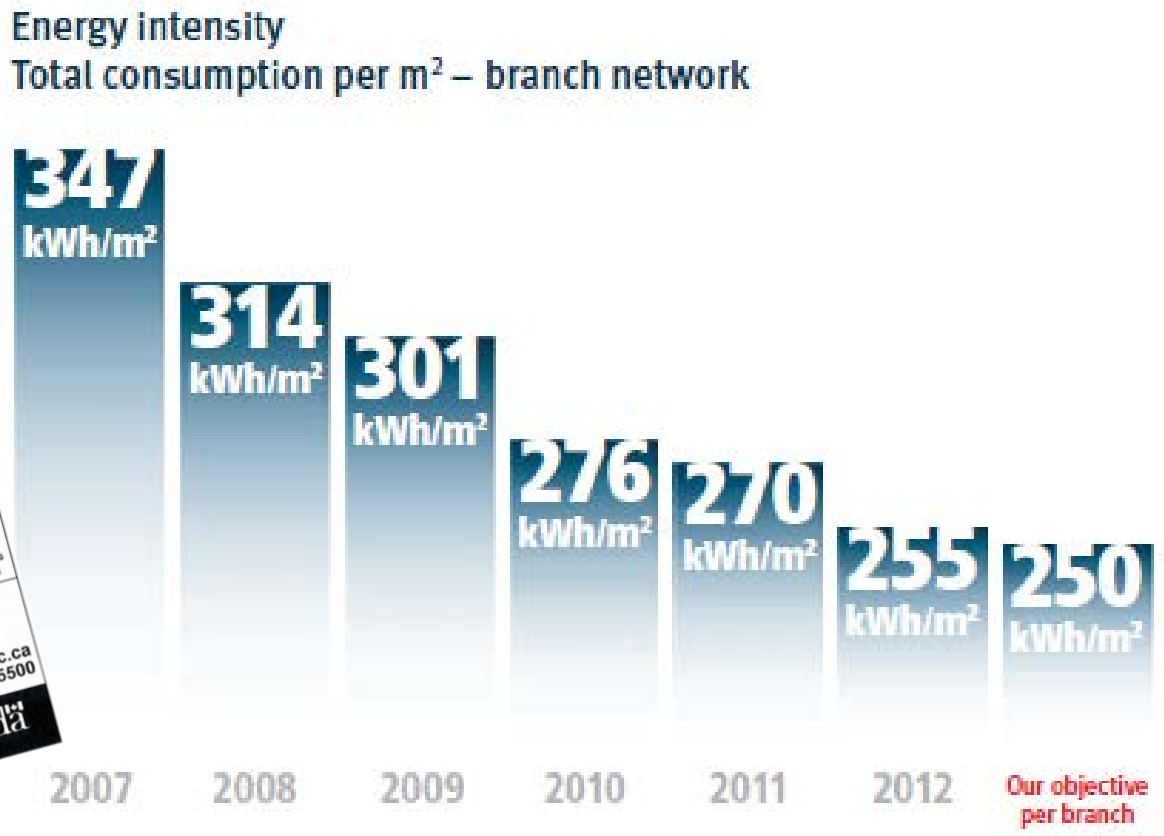
92% electricity / 7% natural gas / 1% fuel oil

Meters – 88%

397/451 branches

Performance indicator





* Energy rating – pilot project AQME

Message from the president…

Because looking out for future generations also means preserving the environment, we have continued to focus on sustainable development.

We have taken concrete steps towards responsible sourcing, increasing our energy efficiency and managing our greenhouse gas emissions, to name just a few initiatives.

Louis Vachon
President and Chief Executive Officer

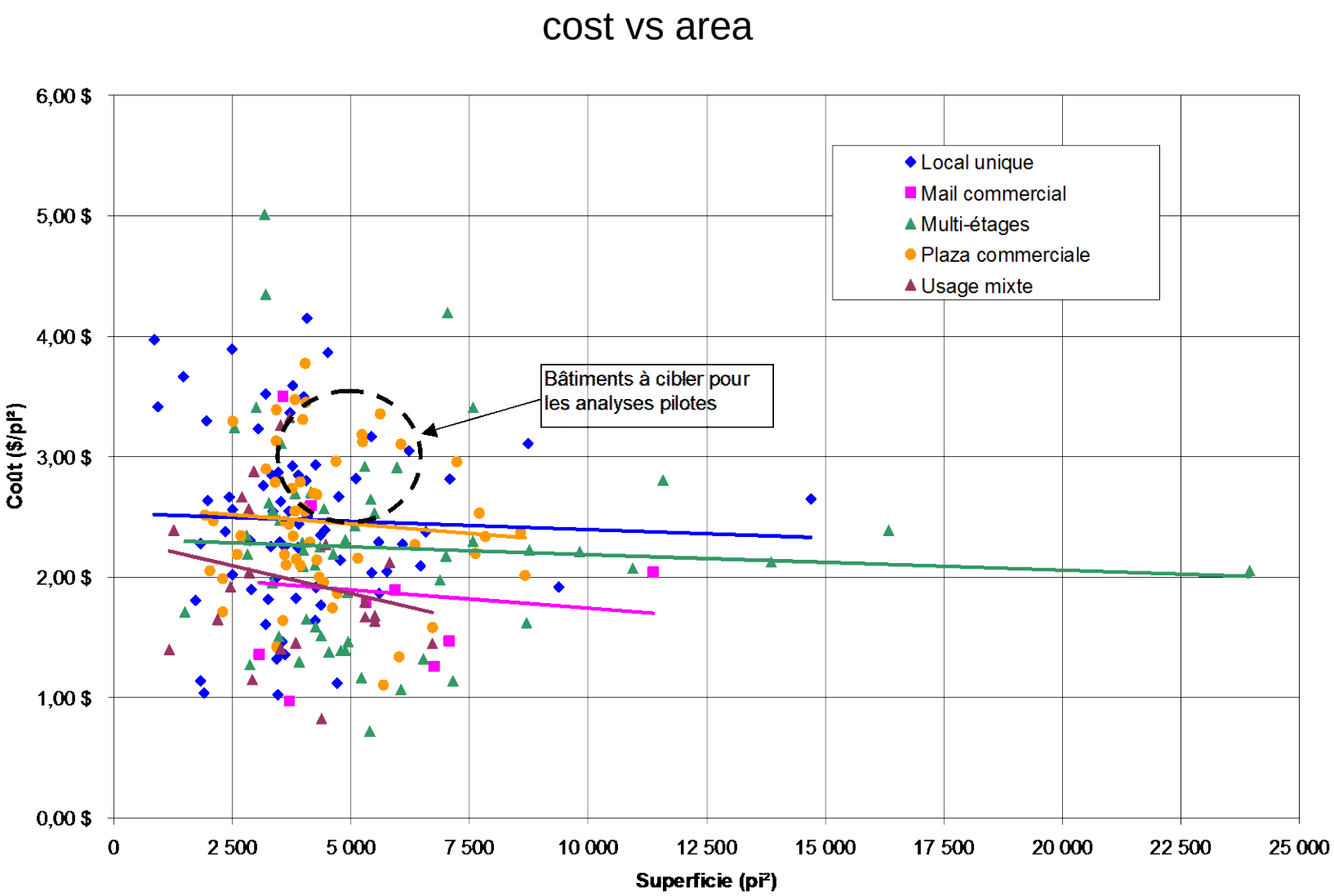
Ref.: 2012 social responsability report

Goals of the CEEP

Comprehensive **E**nergy **E**fficiency **P**rogram

- Reduce the energy intensity up to 30%
- Improve the comfort of employees and customers
- Standardize HVAC controls
- Reduce maintenance costs
- Reduce GHG emissions

Labeling


cost vs area
6,00 $
5,00 $
4,00 $
3,00 $
2,00 $
1,00 $
0,00 $
Coût ($/pi²)
0
2 500
5 000
7 500
10 000
12 500
15 000
17 500
20 000
22 500
25 000
Superficie (pi²)
Local unique
Mail commercial
Multi-étages
Plaza commerciale
Usage mixte
Bâtiments à cibler pour les analyses pilotes

Project activities

2006 – Start-up

Labeling

- Centralized billing(Helios)
- Measuring energy rating
- Consolidate data by type of building

Measures

- Convert to variable volume (VAV)
- Optimizing units supply temperature
- Fresh air control by CO2 sensor
- Modulation of electric heating coils and baseboards (TRIAC)
- Dynamic night setback (outside temperature)
- Standardized and individual schedules
- Electricity demand control

Diagnosis

- Lightened diagnostics (10 branches)
- Overall evaluation of potential energy saving
- Pilot projects (2 branches)

Project activities (continued)

2007 – Implementation of 25 branches

Implementation

- Start of the energy integration project
- Prioritize energy intensive branches
- HQ program: support to initiatives – Building optimization

Project activities (continued)

2007 to date – Project intensification

Intensification

- Online access of « Web supervisor » (Tridium platform)
- Systematic integration in all major projects
- Integration of 230 branches, bringing the total to 255 on October 31, 2012

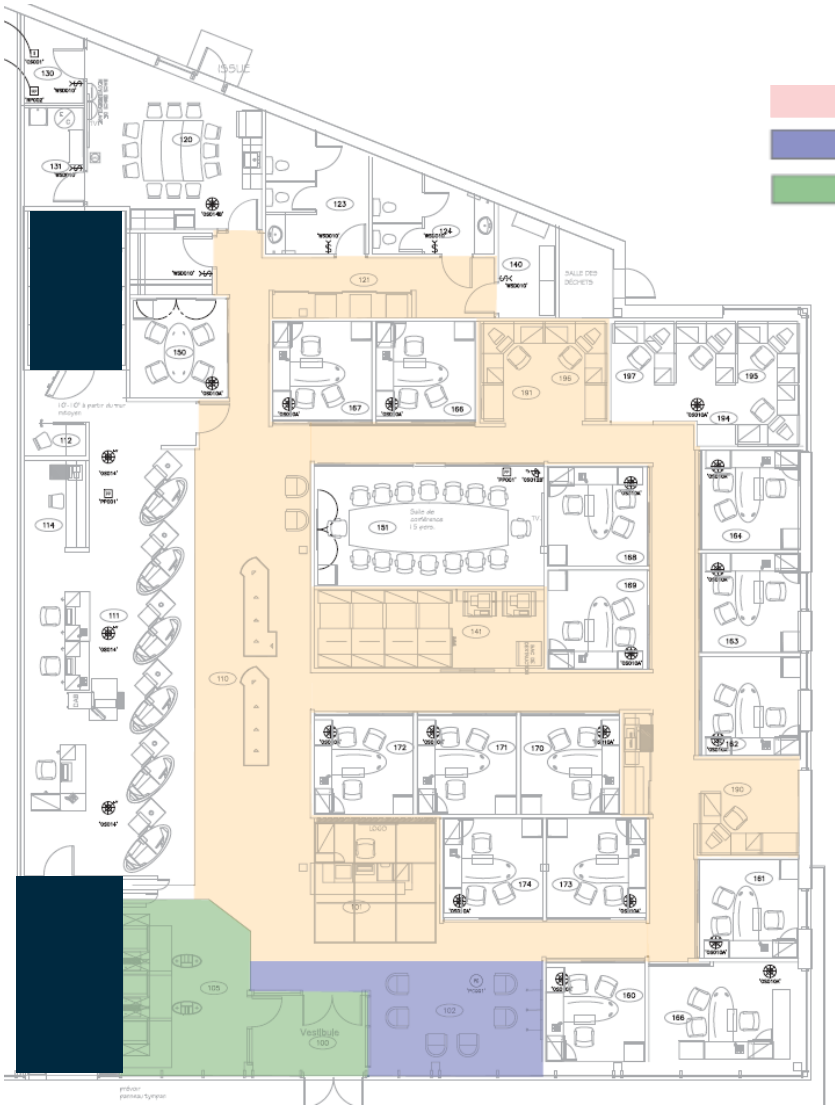
Deployment effort

Standardization

- Lighting and HAC system zoning
- Direct Digital controls
- Control sequences
- Tender, exclusive supplier
- Controls programming
- Quotation by project
- Schedule and start-up of controls
- Systematic commissioning

Standardized HVAC zoning

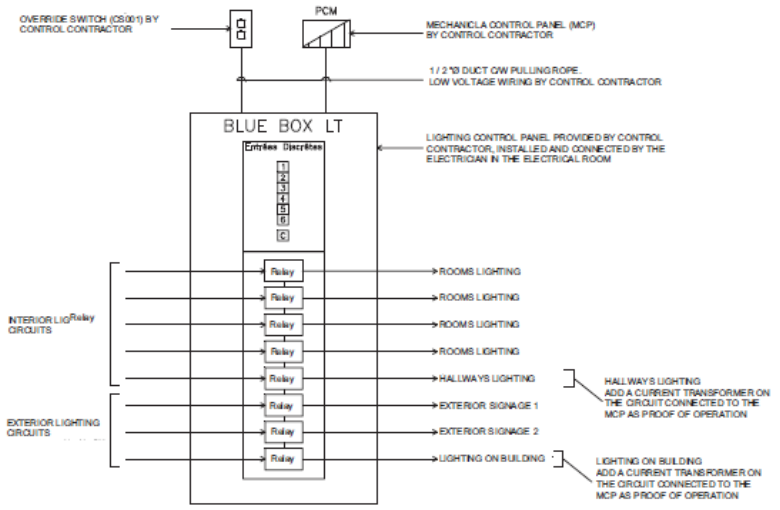
Standardized lighting zoning



Areas on the hallways lighting contactor

Dimmable luminaires connected to the hallways lighting contactor

Dimmable luminaires turned on 24h



TYPICAL LIGHTING CONTROL PANEL (LCP)

Standardized equipment

Terminal heating coil with SCR	Electric baseboards with TRIAC relays	Electronic thermostats
Fan heaters connected to the MCP	Digital temperature sensor by room	Power meter to limit the power demand

Systematic commissioning

Main audited items

HVAC units (fresh air)	Exhaust fan	Ventilation zoning equipment
Ventilation zoning programmation	Other heating equipment	Equipment not connected
Power meter	Centralized system: Sequences and schedules	Lighting controls

Deficiencies follow-up

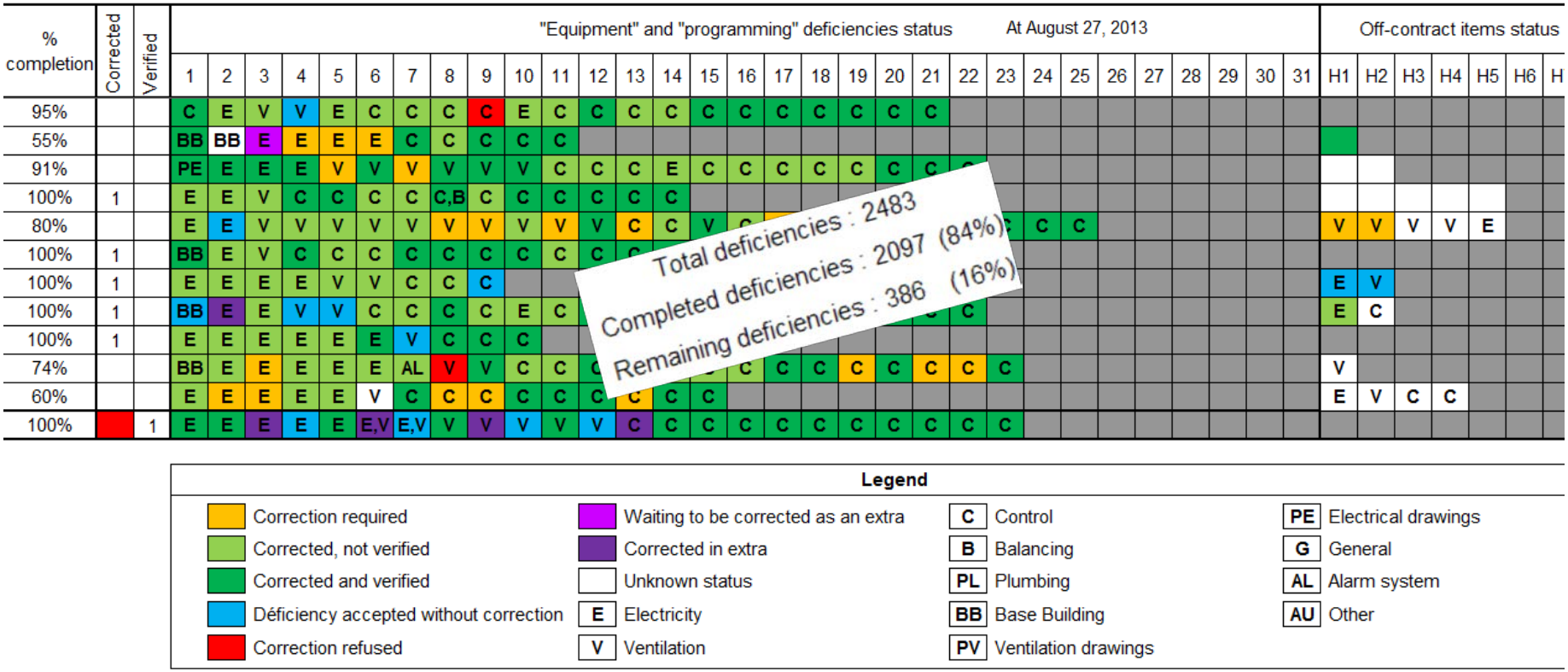
This table must be completed by xxx in order to make the follow-up of the corrections of the deficiencies.

Deficiencies follow-up – Programming of centralized controls				
Nb.	**Description**	**Correction date**	**Verified by..... employer** *(note 1)*	**Comments**
1	The rooftop unit RTU-1 is functioning 24h/24.			
2	Most of the thermostat temperature setpoint are not the same as those on the user interface.			
3	The control signal for the baseboard heater of the self-service area is not given when this area has a heating demand			
4	The heating setpoint of the electrical room's thermostat must be 18°C and the cooling setpoint must be 24°C.			

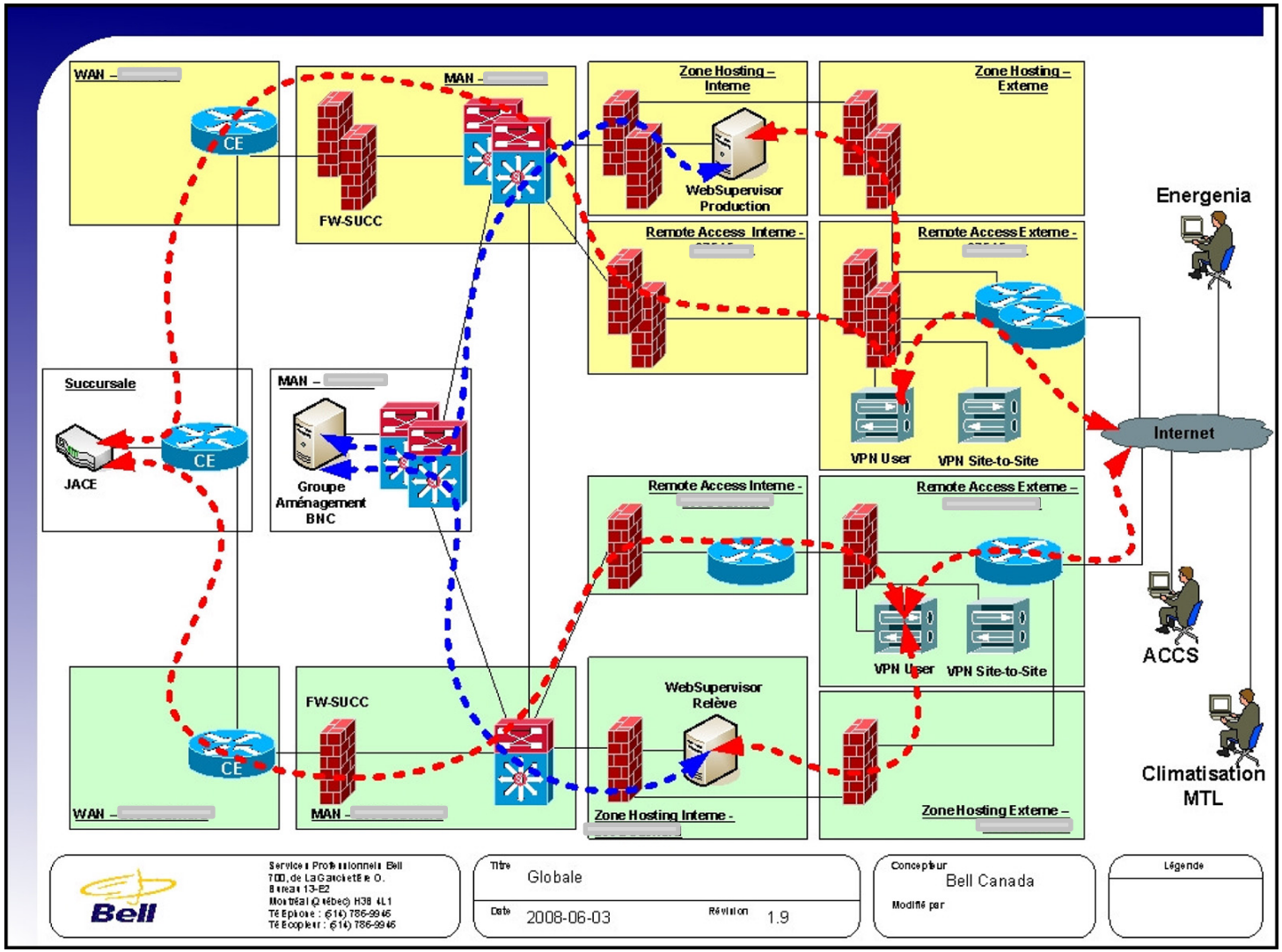
Note 1 : The deficiencies shown in this table can usually be corrected and verified with the help of the remote access to the centralized controls.

Once completed, send this table to the project leader xxx xxx (xx.xx@bnc.ca) and to xxx xxx (xxx.xxx@energenia.ca).

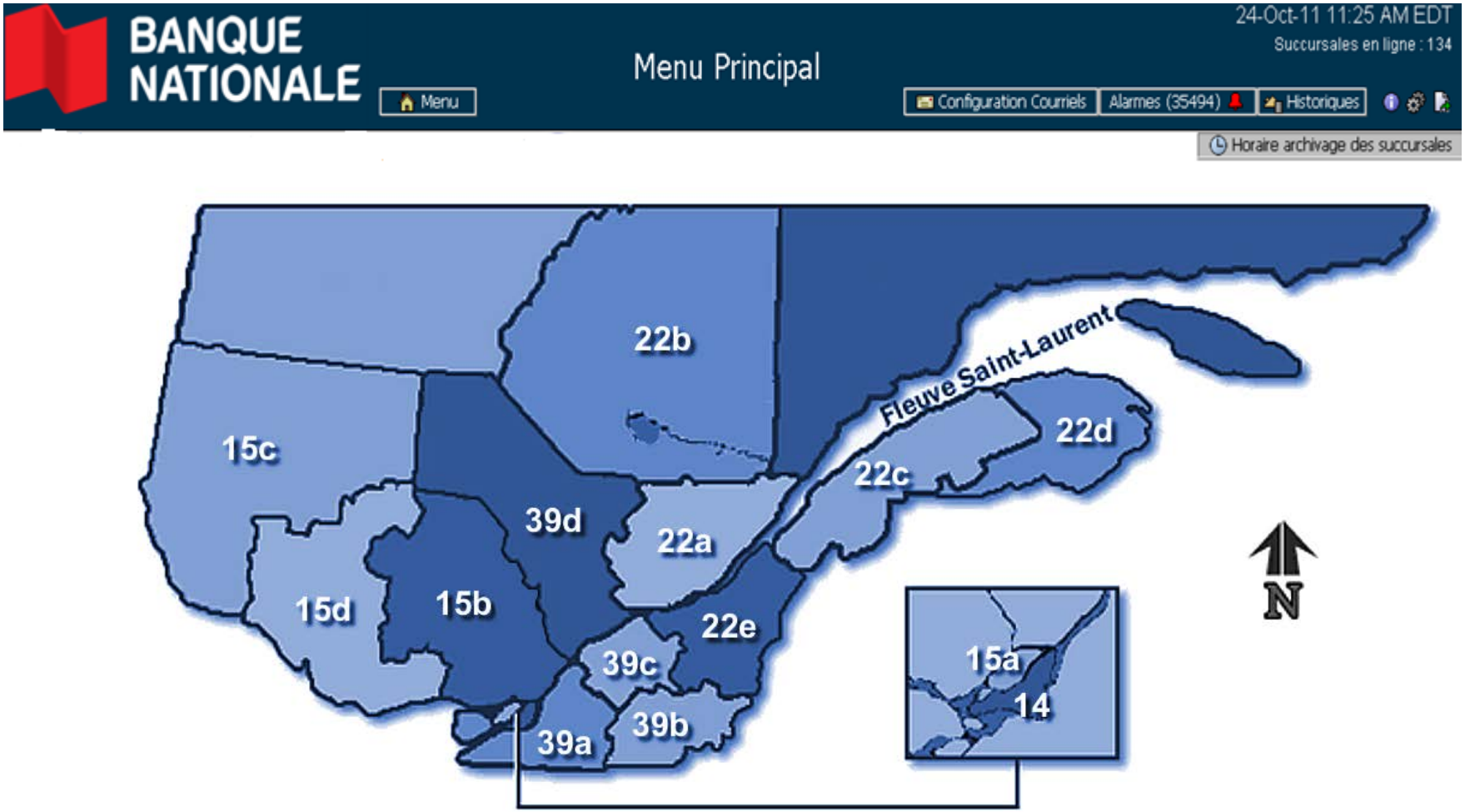
Deficiencies status by project



Secured web platform

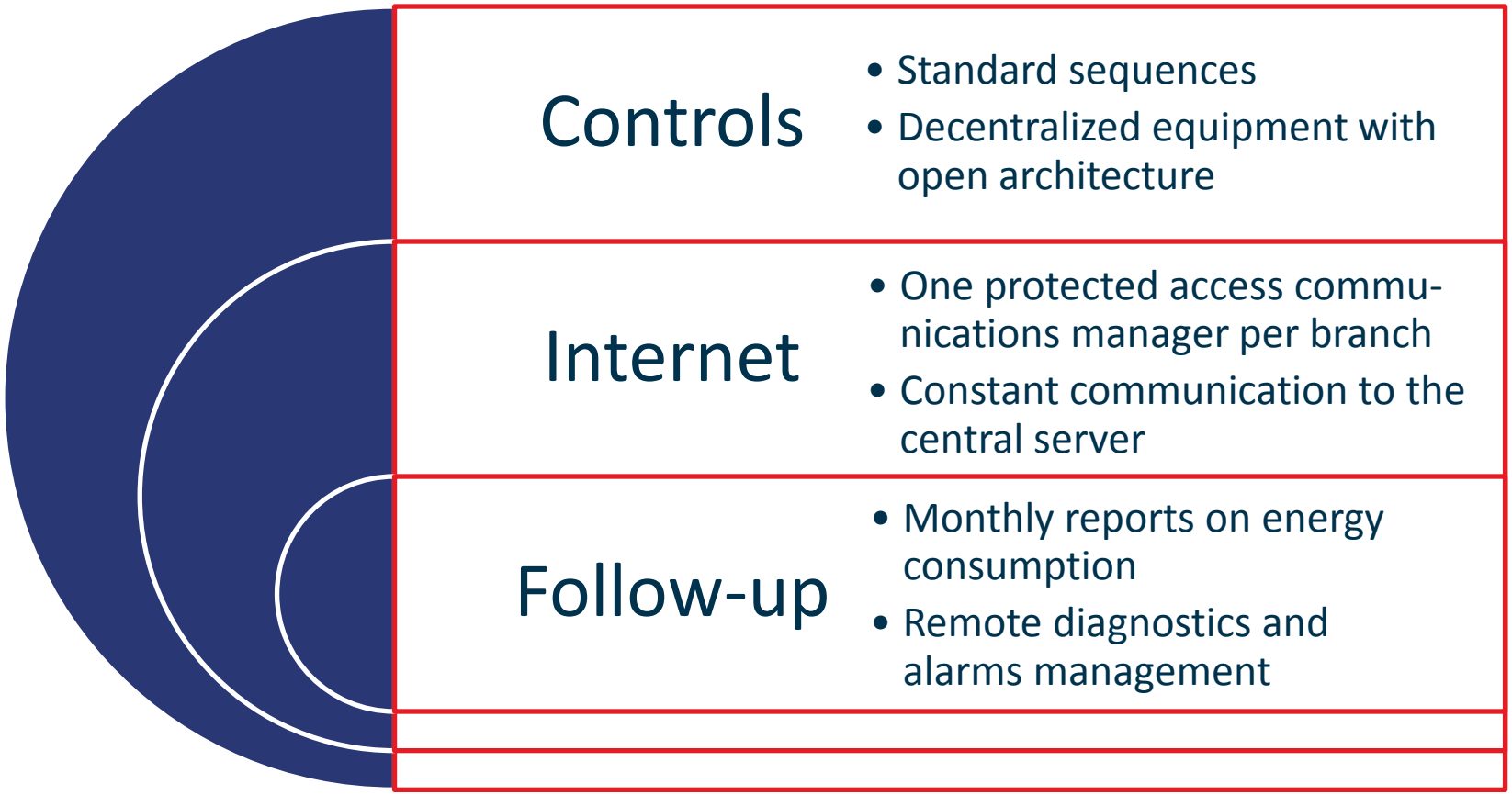


« Web supervisor »



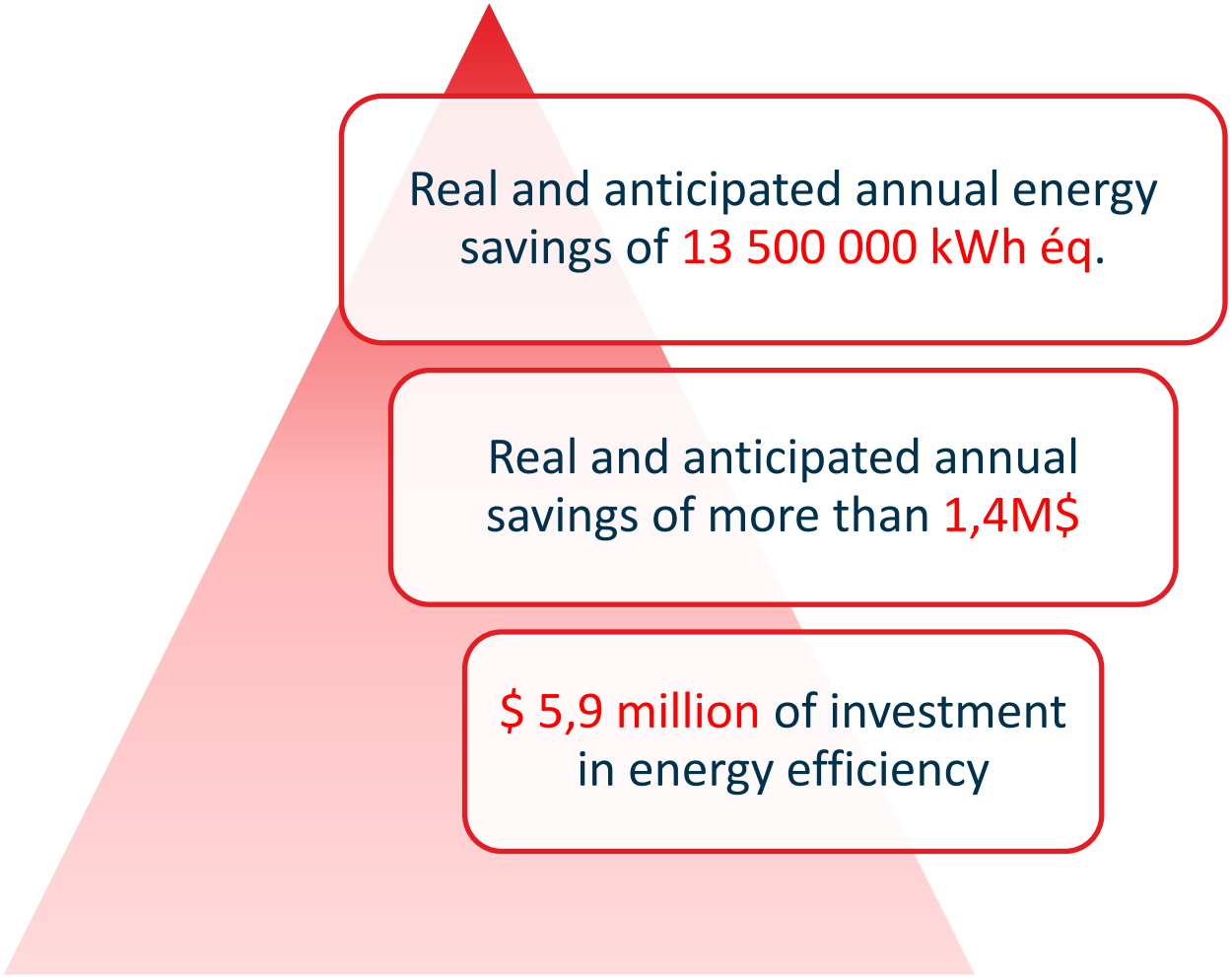
Centralized approach

Energy management – 3 poles



Energy performance

255 branches – October 31st 2012



Energy performance (continued)

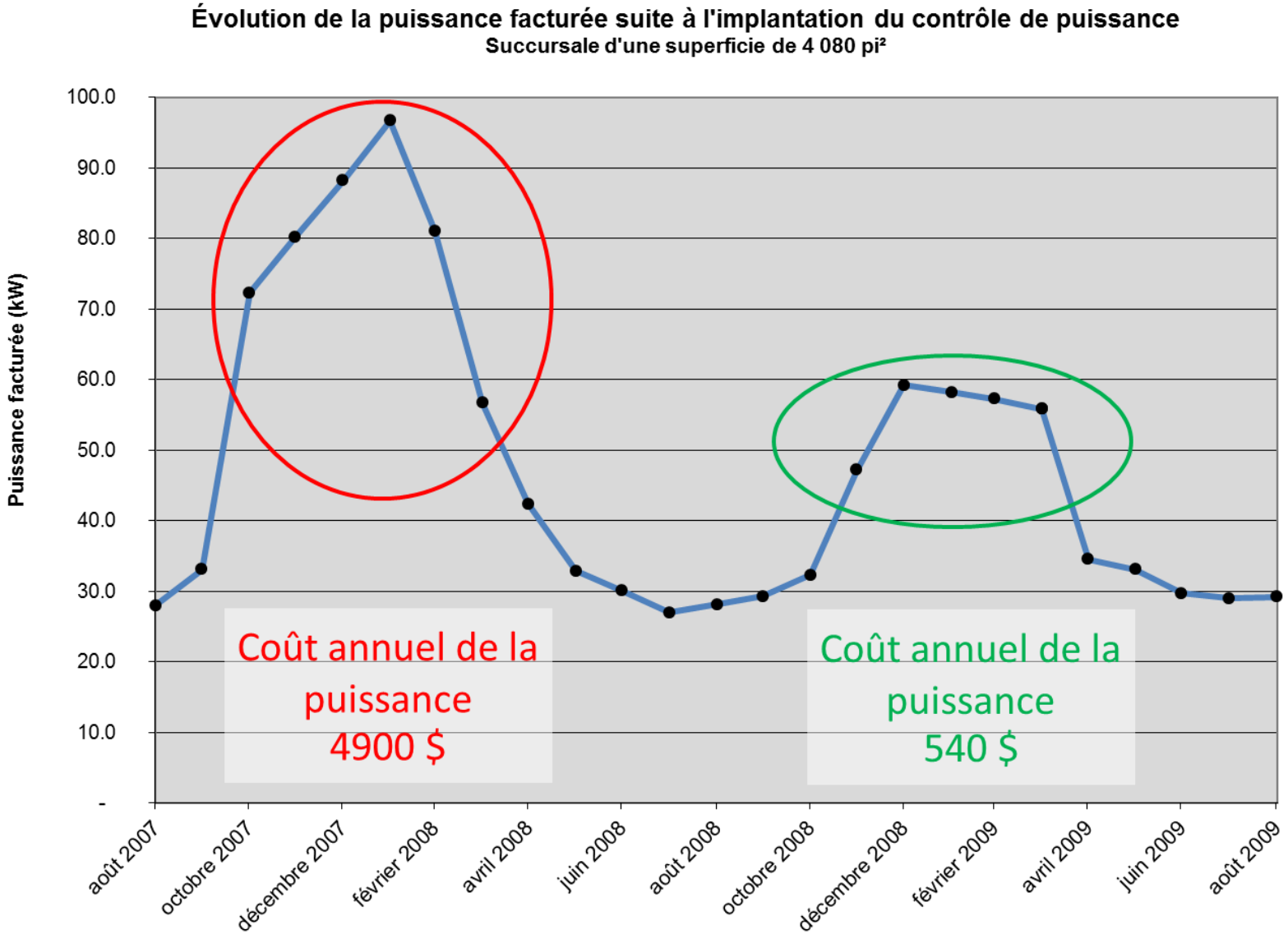
As of January 31st 2013

	2007	2008	2009	2010	2012

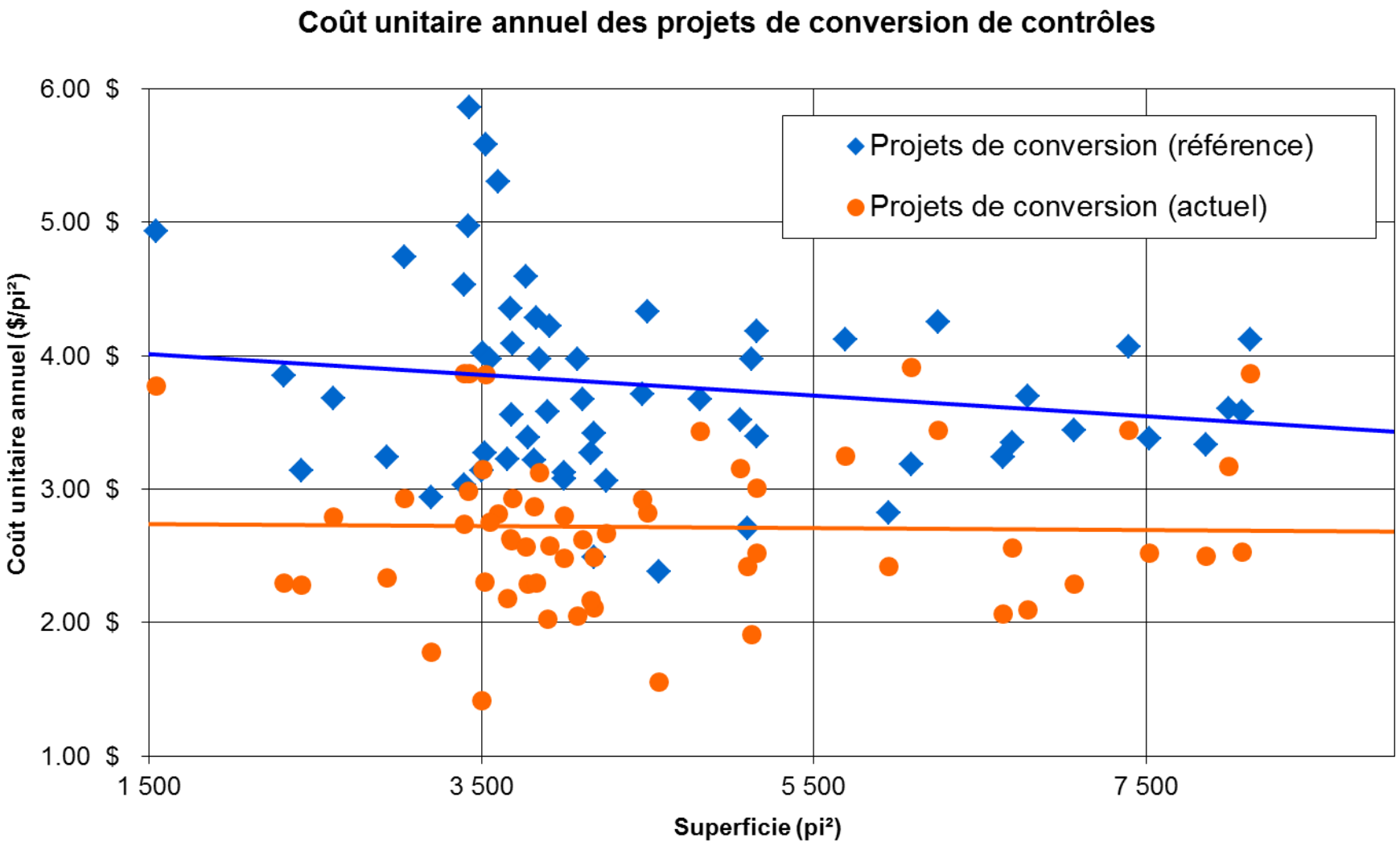
	2007		2008		2009		2010		2011	
	Économies anticipées	Économies réelles	Économies anticipées	Économies réelles	Économies anticipées	Économies réelles	Économies anticipées	Économies réelles	Économies anticipées	Économies réelles
Conversion de contrôles, conversion du chauffage au mazout et mise à niveau de contrôles	78 600 $	88 200 $	93 100 $	105 900 $	53 900 $	41 900 $	33 600 $	44 500 $	77 900 $	81 000 $
Recommissioning (RCx) et intégration	-	-	-	-	-	-	28 100 $	21 100 $	3 000 $	1 000 $
Projets majeurs (Nouvelles succursales, réaménagements et agrandissements)	52 900 $	56 800 $	42 500 $	57 900 $	83 700 $	93 200 $	162 400 $	237 600 $	165 900 $	173 400 $
Totaux pour les projets PEE - Févri	131 500 $	145 000 $	135 600 $	163 800 $	137 600 $	135 100 $	224 100 $	303 200 $	246 800 $	255 400 $
Réalisation de la cible (%)	110%		121%		98%		135%		103%	

Cumulative results vs target	110%	121%	98%	135%$	104%

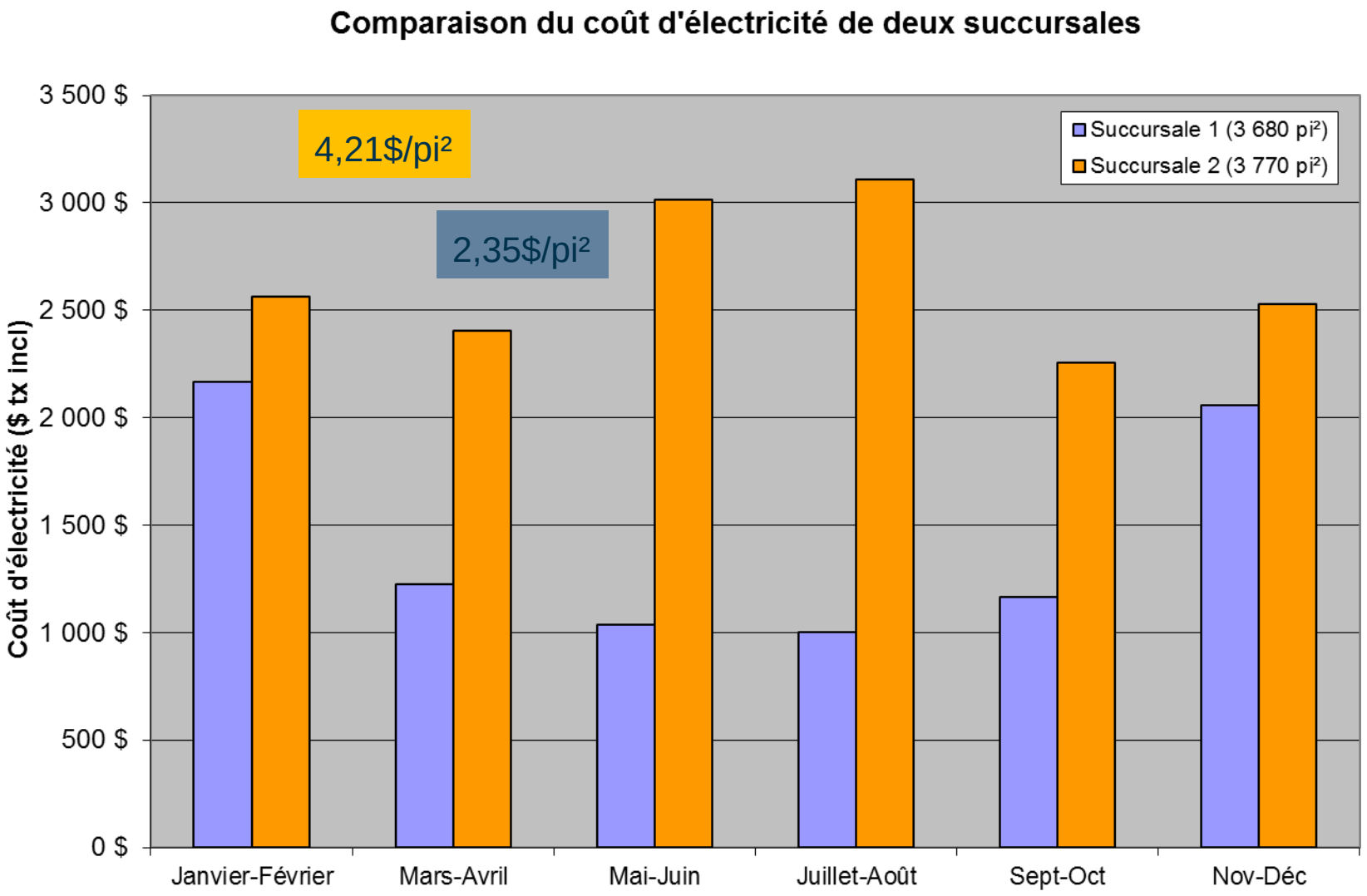
Performance example (continued)



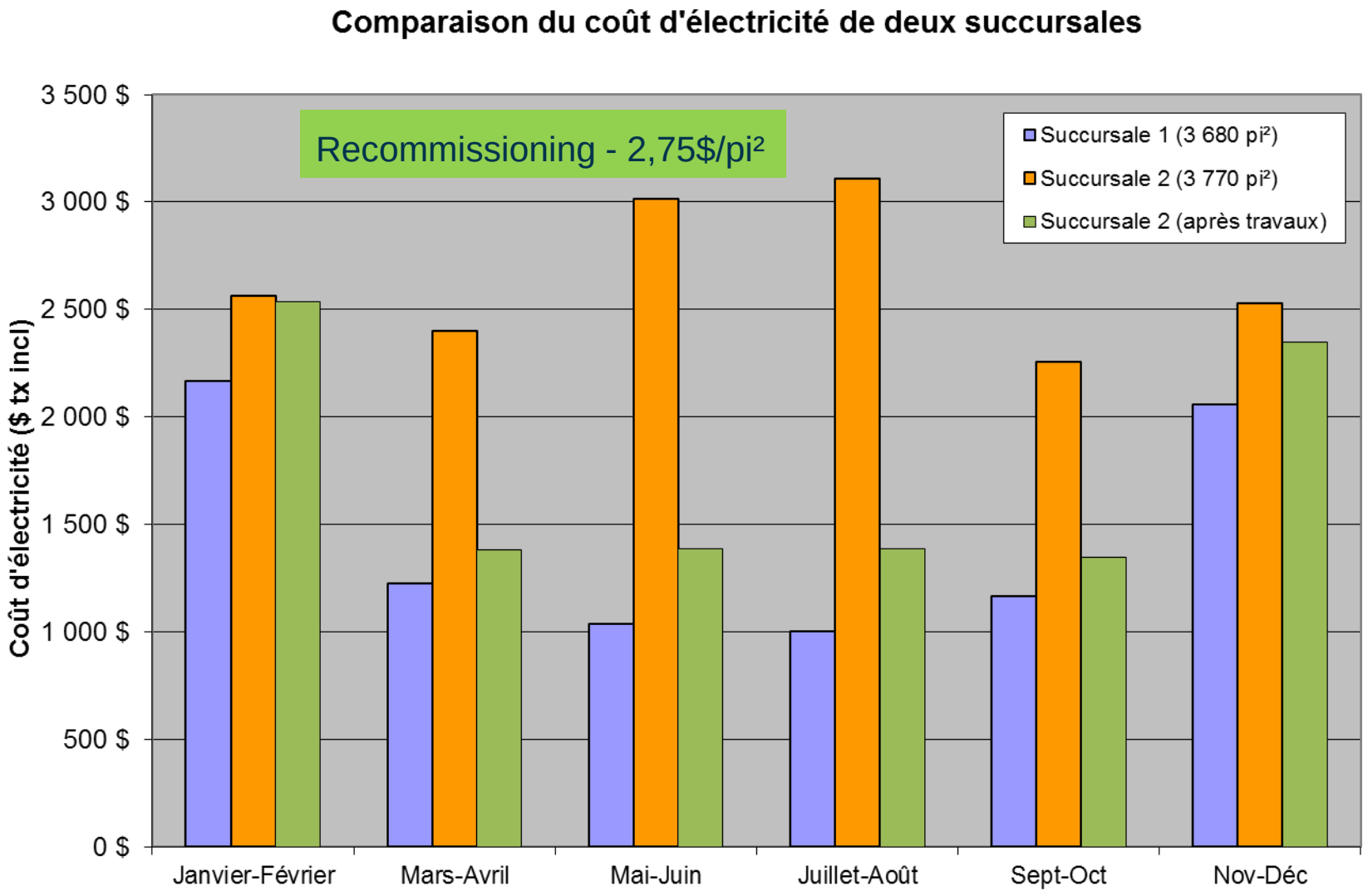
Performance example (continued)



Performance example (continued)



Performance example (continued)



Performance example (continued)

Succursale de 3 650 pi²

2009			2010			2011			2012		
Coût $		Diff. %	Coût $		Diff. %	Coût $		Diff. %	Coût $		Diff. %
1 861,15	0	11,38	1 697,64	0	-8,78	1 759,07	0	3,61	1 195,74	0	-32,02
1 472,86	0	0,42	1 461,94	0	-0,74	1 603,15	0	9,65	1 043,37	0	-34,91
1 371,00	0	-0,20	1 253,85	0	-8,54	1 534,55	0	22,38	717,25	0	-53,25
966,66	0	17,03	942,78	0	-2,47	1 094,33	0	16,07	577,26	0	-47,24
758,06	0	-7,94	790,92	0	4,33	827,72	0	4,65	553,65	0	-33,11
715,79	0	7,39	730,72	0	2,08	718,73	0	-1,98	492,96	0	-31,17
722,22	0	-6,59	740,15	0	2,48	704,76	0	-4,78	553,65	0	-21,43
752,09	0	-9,63	692,35	0	-7,94	698,69	0	0,91	556,67	0	-20,32
709,81	0	-8,84	745,65	0	5,04	680,22	0	-8,77	468,87	0	-31,07
967,12	0	17,02	1 026,86	0	6,17	560,66	0	-45,40	478,37	0	-14,67
1 196,65	0	9,91	1 271,32	0	6,23	563,19	0	-55,70	727,82	0	29,23
1 734,50	0	4,57	1 679,20	0	-3,18	995,77	0	-40,69	972,21	0	-2,36
13 227,91	0	3,46	13 033,38	0	-1,47	11 738,28	0	-9,93	8 337,82	0	-28,96

-37%

Signs conversion project

Conversion project results

Table 6: Measurement of the signs

Type	Power		Power reduction
	Before (T12)	After (LED)	
6 feet	197 W 0.99 pf	27 W 0.99 pf	170W
10 feet	425 W 0.97 pf	40 W 0.99 pf	385 W
12 feet	451W 0.95 pf	51 W 0.99 pf	400 W

Table 7: Final energy savings results

Type	Counting	Savings for 1 year	
		Power	Energy
6 feet	29	4.9 kW	21 593 kWh
10 feet	102	39.3 kW	172 003 kWh
12 feet	160	64.0 kW	280 320 kWh
Total	**291**	**108.2 kW**	**473 916 kWh**

ROI: 3.8 years

Le projet de modernisation des enseignes de la Banque Nationale a permis de convertir à un éclairage DEL un total de 291 enseignes dans 177 succursales. L'investissement de la Banque pour ce projet est de 287 819 $.

Comfort quality in the branches

Total

Déficient	Inconstant	Adéquat	Excellent	Ne sais pas / Pas d'opinion
10%	22%	49%	15%	4%
32%		64%		

Succursales AYANT bénéficié d'améliorations

Déficient	Inconstant	Adéquat	Excellent	Ne sais pas / Pas d'opinion
4%	21%	60%	15%	-
25%		75%		

(n=68)

Succursales N'AYANT PAS bénéficié d'améliorations

Déficient	Inconstant	Adéquat	Excellent	Ne sais pas / Pas d'opinion
11%	23%	46%	15%	5%
34%		61%		

(n=255)

Différence statistiquement significative

Réf. **Sondage Omnibus - Septembre 2010**

Recherche Marketing & Intelligence de Marché

BNC

energenia

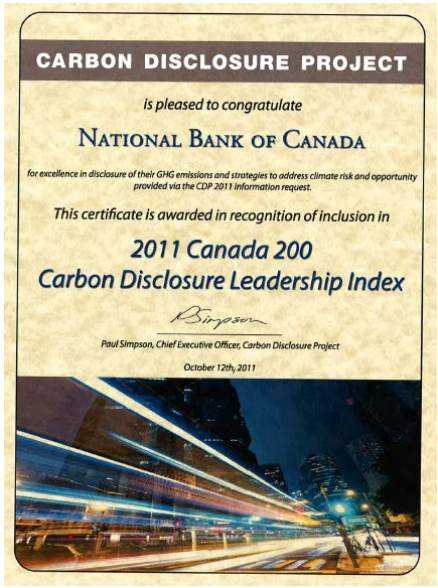
BANQUE NATIONALE GROUPE FINANCIER

Recognitions

2011

2010

2010 & 2011



2009

2009

energenia

BANQUE NATIONALE GROUPE FINANCIER

Energia award 2011

Le programme comprend plusieurs volets, dont :

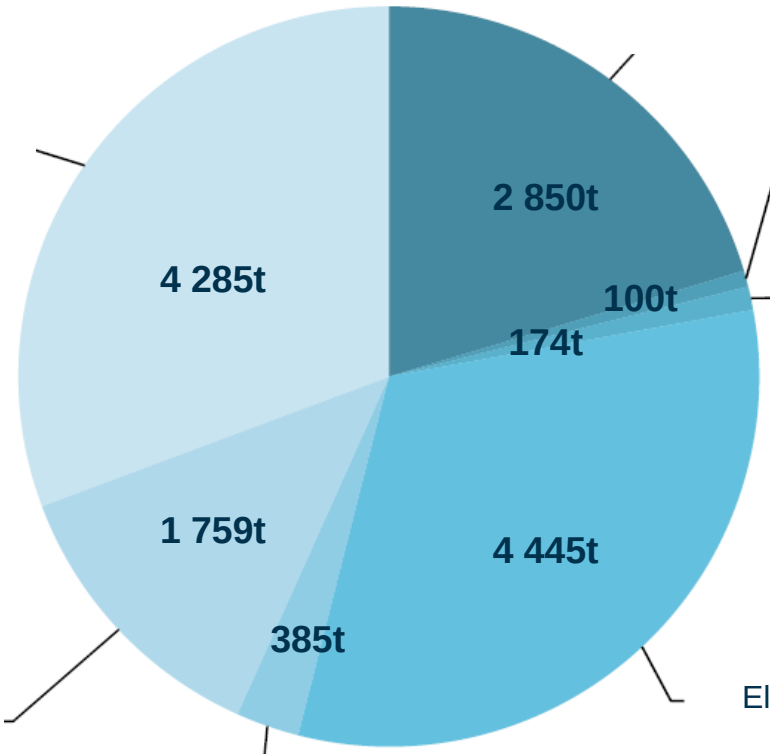
- la centralisation de la gestion des coûts de l'énergie;
- la modernisation des équipements d'éclairage, de chauffage, de ventilation, de conditionnement d'air (CVCA) et de contrôle dans ses succursales;
- le déploiement d'un réseau virtuel pour la gestion et le diagnostic à distance des équipements de CVCA;
- la comptabilisation annuelle des GES (gaz à effet de serre) émis par ses différentes activités;
- l'atteinte de la carboneutralité pour l'ensemble de ses opérations;
- l'application des normes environnementales LEED;
- le développement d'une politique d'approvisionnement responsable.

Efficacité énergétique : la Banque se démarque

Le 1er février dernier, la Banque se démarquait une fois de plus en matière d'efficacité énergétique en remportant le prix Energia, dans la catégorie Gestion intégrée. Cette reconnaissance, remise par l'Association québécoise pour la maîtrise de l'énergie (AQME), a mis en lumière un ambitieux projet de la Banque qui vise à réduire d'au moins 20 % la facture d'énergie de ses succursales. Avec des solutions tout à fait novatrices, la Banque a non seulement dépassé sa cible de réduction d'énergie, mais elle a en plus offert un meilleur confort aux employés et aux clients en succursale. Une équation impossible ? Lisez la suite.

Carbon footprint

Distribution of GHG emissions year 2011



Fossil fuels - 20%

Vehicule fleet - 1%

Cooling systems - 12%

Electricity – 32%

Steam - 3%

Supply chain - 12%

Employees' displacements - 12%

17% reduction from 2008

13 998 t $CO2_e$

Recognition: Carbon Care

OBTAINING CARBON NEUTRAL CERTIFICATION

In 2011, National Bank achieved net zero carbon emissions for the first time thanks to an innovative agreement with the Sobeys supermarket chains. As part of this agreement, National Bank has undertaken to purchase 15,000 certified carbon credits annually until 2015, which will enable it to fully offset its greenhouse gas emissions.

In 2012, our continued efforts on this front qualified us to become the first-ever recipient of a Carbon Care™ certificate issued by Enviro-access Inc., following a rigorous carbon audit.

Ref. Social responsability report 2012

Agreement specifications

Purchase: 15 000 certified carbon credits annually

Duration: 5 years

Funds paid: Improve refrigeration system – 44 IGA supermarkets

Self-financing: Energy efficiency

Impacts: removing 3 000 cars

Continuous commissioning

New from September 2013 – Continuous commissioning process

Intensification

- New on-line application to track all service calls for the branches
- Internet based diagnostics prior and after all service calls
- Access shared with controls and HVAC subcontractors

Thank you for your attention!

Branch – head office, Mtl. Qc.

ET ACTION !

CARBON CARE
ENVIRO-ACCESS
2011

energenia

BANQUE NATIONALE
GROUPE FINANCIER